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Bulletin No. 1

of

State Board of Stock Commissioners of Montana

Relative to

Cattle and Horse Mange

"INDEPENDENT PUBLISHING COMPANY, HELENA, MONTANA."

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Helena, Mont., April 6th, 1905.

In accord with the provisions of an order of the Federal Government under name of Bureau of Animal Industry Order No, 123, it is asserted that mange among cattle exisits in Montana, and in compliance with a specific agreement made by the stockmen of this state with the Secretary of Agriculture, a law was enacted by the last Legislature providing means and methods for stamping out such of this disease as may be found to exist, The entire law is as follows:

(B. A. I. Order No. 123.)

REGULATIONS TO PREVENT THE SPREAD OF SCABIES (Mange or Scab) IN CATTLE.

U. S. Department of Agriculture,
Office of the Secretary,
Washington, D. C., March 18, 1904.

To Managers and Agents of Railroads and Transportation Companies in the United States, Stockmen, and Others:

In furtherance of the regulations for the suppression and extirpation of contagious and infectious diseases among domestic animals in the United States, dated March 10, 1903 (B, A. I. Order No. 106), notice is hereby given that a contagious disease known as scabies, or mange, exists among cattle in the United States, and in order to prevent the dissemination of this disease and to aid in its eradication, the following regulations are established and observance thereof required:

1. It is required of everyone intending to ship or to trail cattle to ascertain that the cattle are not affected with scabies and have not been exposed to the contagion thereof before offering them for transportation or before crossing State or Territorial boundaries. Transportation companies are required to provide cleaned and disinfected cars or other vehicles for the reception of cattle, and to refuse for shipment cattle whose freedom from disease and from exposure to contagion is in doubt. Cattle that are not affected with scabies and that have not been exposed to the contagion may be shipped or trailed

without restriction, except as may be provided by other regulations of this Department or such as may be lawfully imposed by the authorities of the State or Territory to which destined, or unless they are in a locality where inspection and certification are required by this Department before their removal therefrom.

2, Cattle that are affected with scabies, or that have been exposed to the contagion of scabies, either through contact with infected herds or infected premises, pens, or cars, shall not be shipped or driven from one State or Territory or the District of Columbia into another State or Territory or the District of Columbia, or into public stockyards or feeding stations, until they have been dipped in a mixture approved by this Department, except as provided in Rule 4,

3, Cattle that are affected with the disease may be shipped for immediate slaughter after one dipping, but if they are intended for feeding or stocking purposes they shall be held for a second dipping ten or twelve days after the first one. All of the cattle in a certain herd or shipment in which the disease is present shall be considered as affected with the disease.

4. Cattle that are not affected with the disease, but which have been exposed to the contagion, may be shipped for feeding or stocking purposes after one dipping, but may be shipped for immediate slaughter without dipping.

5. When affected cattle are shipped for slaughter after one dipping, and when exposed cattle are shipped for slaughter without dipping, the cars conveying them shall be marked on each side with a card bearing in plainly visible letters the words "Scabby Cattle," or "Exposed Cattle," as the case may be; and each of the waybills, conductor's manifests, and bills of lading of such shipments by cars or boats shall have a similar statement plainly written or stamped upon its face. Said cards shall be furnished and affixed by the railroad company and shall not be removed until the cars have been cleaned and disinfected.

6. The dip now approved is the lime and sulphur dip, made in the proportion of 8 pounds of unslaked lime and 24 pounds of flowers of sulphur to 100 gallons of water. Weigh both the lime and sulphur. Place the unslaked lime in a mortar box

or some suitable vessel and add enough water to slake the lime and form a lime paste or lime putty. Sift into this lime paste the flowers of sulphur and stir the mixture well. To make 100 gallons of dip, place the sulphur and lime paste in a kettle or boiler with about 30 gallons of boiling water and boil the mixture for two hours at least, stirring the liquid and sediment; add water when necessary to maintain the quantity. Pour the mixture and sediment into a large tub or barrel placed near the dipping vat and provided with a bunghole about 4 inches from the bottom, and allow it ample time (from two to three hours or more, if necessary) to settle. The use of some kind of a settling tank provided with a bunghole is an absolute necessity, unless the boiler is so arranged that it may be used for both boiling and settling. When fully settled, draw off the clear liquid into the dipping vat and add enough warm water to make 100 gallons. A double precaution against allowing the sediment to enter the vat is to strain the liquid through ordinary bagging as it is drawn from the barrel or settling tank. The same directions apply to larger quantities of dip, proportionate amounts of ingredients being used.

7. The dipping must be done thoroughly; the cattle must be kept in the dip between two and three minutes and be completely submerged twice. The dip must be maintained as nearly as possible at a temperature of 105 degrees F. while the cattle are in it. It must be changed as soon as it becomes filthy, regardless of the number of cattle dipped in it, and in no case shall it be used when more than one week old. In emptying the dipping vat the entire contents must be removed, including all sediment and droppings or other foreign matter. The Department assumes no responsibility for loss or damage resulting from the dipping.

8. Suitable dripping platforms and drying pens shall be provided. In cold weather cattle shall not be dipped unless they can be kept in a warm pen until dry. Cattle shall not be loaded until they have become dry.

9. When large numbers of cattle in a district are ready for transportation, inspectors of the Bureau of Animal Industry will make inspections and give certificates for cattle found free

from disease and not to have been exposed to the contagion and for cattle dipped under their supervision, Certificates will also be given at feeding stations and stockyards where inspectors may be stationed.

10. Cattle shipped under a certificate are not guaranteed uninterrupted transit; for in the event of the development of scabies or exposure to it en route they shall then be handled as affected or exposed cattle and the cars or other vehicles and the chutes, alleys, and pens that may have been occupied shall be cleaned and disinfected.

11. Public stockyards shall be considered as infected and the cattle yarded therein as having been exposed to the disease, and no cattle may be shipped out without being dipped, with the exception noted in Rule 4.. Where, however, a part of the stockyards is set apart for the reception of uninfected shipments of cattle and is kept free of disease, ,cattle may be shipped from such part without dipping. If, by chance, affected cattle are introduced into such reserved part they shall be immediately removed therefrom and the chutes, alleys, ,and pens used by them thoroughly cleaned and disinfected No cattle may be shipped for feeding or stocking from any stockyards where an inspector of the Bureau of Animal Industry is stationed without a certificate of inspection or of dipping given by him.

12. Cars and other vehicles, yards, pens, sheds, chutes, etc., that have contained affected or exposed cattle shall be cleaned and disinfected immediately after the cattle are removed therefrom.

13. Cleaning and disinfection shall be done by first removing all litter and manure and then saturating the interior surfaces of the cars and the woodwork, flooring, and ground of the chutes, alleys, and pens with a 5 per cent solution of crude carbolic acid in water, with sufficient lime to show where it has been applied.

14. Violation of this order is punishable by a fine of not less than $100 nor more than $1,000, or by imprisonment not exceeding one year, or by both fine and imprisonment.

15. B. A. I. Order No. 114 is hereby revoked.

J. H. BRIGHAM,
Acting Secretary.

(Amendment No. 1 to
B, A. I. Order No. 123.)

REGULATIONS TO PREVENT THE SPREAD OF SCABIES (Mange or Scab) IN CATTLE.

U. S. Department of Agriculture,
Office of the Secretary,
Washington, D. C., July 16, 1904.

In consequence of the inability of the Department to begin the work of inspection and of supervising the dipping of cattle at an earlier date and of the inadequate facilities for dipping now available, and in view of the great loss which would be sustained by the owners of cattle in States where cattle mange, or scabies, is prevalent should they be compelled to hold all cattle for dipping or to ship all of them for slaughter as exposed animals, **it is ordered:**

1. That the requirements of B. A. I. Order 123 be and they are hereby modified to allow shipment until November 30, 1904, as hereinafter specified, with the expectation that before said date vigorous measures will be taken by State authorities and stockmen to eradicate the disease through dipping all affected and exposed animals.

2. That fat cattle designed for slaughter originating in an infected section may be shipped to market centers or stockyards where this Department maintains inspection, without dipping or placarding cars, provided they have first been inspected by an officer of the Bureau of Animal Industry and found free from all evidences of scabies ;if it is decided afterwards to reship such cattle for feeding purposes or for export they must be dipped according to the regulations of this Department before leaving such stockyards.

3. That all cattle that are to be shipped from an infected locality into another State or Territory for stocking or feeding purposes must be inspected and dipped twice if showing disease, and be dipped once if not showing disease, on account of exposure to contagion.

4. That all cattle from infected localities must be accompanied by a certificate of inspection or be refused shipment. Provided, that cattle, from sections where satisfactory dipping

is practiced, found, upon due inspection by an Inspector of the Department, free from the disease at the place of shipment, may be shipped thence for any purpose without restriction other than required by the State to which shipped.

5. That cattle from an infected section shall not be trailed to other States or Territories without dipping and certification, and when trailed the inspector shall designate the route to be taken in each case.

6. That affected cattle may be dipped once under the supervision of an employee of the Bureau of Animal Industry and shipped for stocking or feeding purposes, after satisfactory arrangements have been made for the second dipping en route at the required time after the first dipping, at a point where there is on inspector stationed and under his supervision. In all such cases the cars, waybills, conductor's manifests, and bills of lading must be marked, showing the true condition of the animals.

7. That inspectors in the field must see all animals placed on board cars after inspection and certification. If, however, the inspector's services are immediately required at another point, such animals may be turned over to the railroad agent and placed in the railroad pens and locked up by the agent until loaded.

JAMES WILSON,
Secretary.

HOUSE BILL NO. 12.

"An Act to Provide for the Prevention and Eradication of Scabies Among Horses, Mules, Asses and Cattle."

Be It Enacted by the Legislative Assembly of the State of Montana:

Section 1. In addition to the powers now conferred upon it by law the Board of Stock Commissioners of this State shall have the power and it shall be its duty to determine the existence of, and employ the most efficient and practical means to prevent, suppress, control and eradicate the disease known as scabies, among horses, mules, asses and cattle ;and to direct and regulate the handling, dipping or treating of any of the aforesaid classes of livestock when infected with or exposed to the

said disease; to make and adopt such quarantine and sanitary regulations to that end as may be by it deemed expedient, provided, that all such regulations shall so far as practicable conform to the regulations in that regard of the Department of Agriculture of the United States as they shall be from time to time promulgated; and to create and define districts within which such disease exists; provided further that in determining the district or districts within this State in which such disease from time to time exists, said board shall co-operate with the said Department of Agriculture.

A majority of said Board shall constitute a quorum, and the said Board may exercise any of the powers conferred upon it by this Act through committees of its own members thereto specially empowered by resolution.

Section 2. Whenever the said Board shall from time to time have determined that said disease exists in any such district or districts, and created and defined the same, the same shall be known as an infected district or districts, and the Board shall as soon as possible after creating such infected district, cause notice of the creation and of the limits thereof to be given by publication once a week for three successive weeks in some newspaper published within and of general circulation within said district, and if no newspaper be published therein, then in some newspaper published at a point nearest thereto; and thereupon it shall be the duty of all persons owning or having the control of any of the aforesaid classes of livestock within the boundaries of said district, to dip or treat said livestock within said district or so much of said livestock as the regulations of said Board applicable to said district may require, the dipping of all such livestock to be in strict compliance with the regulations of said Board, and within such reasonable time after the completion of the publication of the notice of the creation of said district as said Board may prescribe. The said Board shall, before publishing said notice, as to any created district, prescribe the dipping regulations applicable thereto; and shall publish said regulations with said notice.

Section 3. It shall be the duty of said Board of Stock Commis-

sioners promptly upon the expiration of thirty (30) days after the completion of the publication of the notice of the creation of any such infected district, to cause to be seized and gathered and dipped and treated any undipped or untreated livestock of the classes named within said district; provided, however, that no obligation shall exist or be created by or against the said Board on account of the dipping or treating of any livestock by it, but such expenses shall be a charge against and shall be paid by said Board out of any sums realized out of the lien of liability by this Act created.

Section 4. The State Veterinarian and Stock Inspectors shall be subject to the supervision and control of the said Board in the exercise of the powers conferred upon it by this Act, and they shall accomplish all orders to them by said Board directed and perform all duties that may be imposed upon them by the regulations of said Board, and to that end whenever necessary, they may enter upon and examine any car, yard, stable, corral, steamboat or any building or premises to examine and said livestock therein or thereon, and otherwise do whatever may be found necessary and proper therein or thereon to the effectual discharge of their said powers and duties.

Section 5. The Stock Inspectors shall be deemed for the purpose of accomplishing the provisions of this Act, Deputy State Veterinarians, and subject to the approval of the Department of Agriculture of the United States; the Inspectors appointed by it may also be appointed Deputy State Veterinarians by the said Board for the purpose of this Act, and they shall hold said appointment at the pleasure of said Board so long as they remain Inspectors of said Department and as such are stationed in this State, and they shall act as such Deputies without bond or compensation from the State and shall possess all the powers and duties of Deputy State Veterinarians as needed for the purpose of this Act.

Section 6. All dipping shall be under the supervision of the State Veterinarian, and every person within the district who shall own or control any of said livestock required to be dipped or treated therein, shall as soon as the same shall have been

dipped or treated in conformity with the regulations of said Board, be entitled to receive and shall receive from the State Veterinarian a certificate in writing to that effect. The said Board is hereby empowered and required by regulation to impose and collect a dipping inspection fee to cover the estimated cost of dipping or treating supervision incurred under its regulations.

Section 7. For all sums paid out by the said Board, pursuant to the provisions of this Section, and in addition thereto such further sum per head of livestock dipped or treated as in this Act provided, as may be fixed by the said Board by regulation as a penalty, and for all amounts due on account of dipping or treating supervision, it shall have a lien upon all such livestock so dipped or treated and any other livestock of the person owning same, which lien shall be a first lien and superior to any other lien, claim or demand against said livestock, which said lien the said Board shall have power to enforce by appropriate action and it may further maintain an action to recover from the owner of such livestock the amount of said lien.

The Board shall cause to be kept in the office of the Secretary thereof a record of all sums due to it on account of payments made or expenditures incurred on account of the dipping or treating supervision, together with the brand of all livestock affected by the lien aforesaid and the name of the owner thereof. A certified copy of such record shall be filed in the office of the County Clerk where such owner resides, or where such livestock are, if the owner does not reside in the State of Montana, which shall be deemed to impart notice of such lien. No such lien shall be effective until such certified copy is so filed.

Section 8. Any owner or person having control of any of said livestock or any other person whether an officer or employee of said Board or a private person who shall wilfully violate any provisions of this Act or regulations or orders lawfully made in conformity therewith, or who shall in any manner hinder or obstruct the execution of any such regulation or order, or hinder, restrict or obstruct any officer or employee of said Board or the State Veterinarian or any of his Deputies or any Stock Inspector in the discharge of his duty or in the exercise of his lawful powers or who shall wilfully or negligently break any

quarantine, or wilfully or negligently suffer any quarantined animal or animals to escape from quarantin,e shall be deemed guilty of a misdemeanor.

Section 9. All Acts or parts of Acts in conflict herewith are hereby repealed.

Section 10. This Act shall be in full force and effect from and after its approval by the Governor,

WYLLYS A, HEDGES,
Speaker of the House.
EDWIN NORRIS,
President of the Senate.

Approved Feby. 6th, 1905.
J. K. TOOLE, Governor.
Filed Feby. 6th, 1905, at 9:15 a. m.
A. N. YODER, Secretary of State.

RESOLUTIONS OF BOARD.

In compliance with the provisions of the aforesaid law, the Board of Stock Commissioners at their annual session April 4th and 5th, 1905, adopted the following resolutions, which practically constitute the regulations governing the Board in its enforcement of the law:

1. Resolved, that the President and Secretary of the Board of Stock Commissioners, with the State Veterinarian and Messrs. David Fratt and M. E. Milner, be delegated by this Board as its Executive Committee and that it shall be the duty of this Committee to elect the Executive Officer of the Board for the purpose of carrying out the provisions of the "Scab Law," in addition to which, this Committee shall perform all duties prescribed by the Board of Stock Commissioners and that they be empowered to act when the Board is not in session.

2. Be it further resolved, that each of the several commissioners throughout the State shall determine the scab infected localities in his county, and upon his recommendation to the Executive Committee, it shall be their duty to send the State Veterinarian or his Deputy to investigate the existence of such

disease, and if he finds said disease existing, then upon the recommendation of the State Veterinarian the Executive Committee must establish a dipping district.

3. Be it further resolved, that the owners of cattle in each roundup district shall construct a vat or vats sufficient in number to dip all the infected and exposed cattle within said district, the expense of such construction to be borne by the owners of the cattle in such district proportionate to the number of cattle owned or controlled by them, this applying to districts where vats are not now constructed.

4. Be it further resolved, that owing to the strenuous methods adopted by the Federal Government for the eradication of scabies, it is hereby unanimously ordered by the Board of Stock Cimmissioners at their regular meeting held April 4th, 1905, that vats for the proper dipping of cattle be established under the direction of the Stock Commissioner of each county, (he co-operating with the stockmen in his district), wherever said vats may in his judgment be required, and the cost of vats to be paid as provided by law; and failure to so construct such vats shall subject the Stock Commissioner to a fine as provided by law. It is hereby further ordered that the State Veterinarian immediately call together at suitable places, the several Stock Inspectors appointed by this Board, for the purpose of instructing them so they may be able to determine scab.

5. Be it further resolved, that the Governor be requested to issue a proclamation to prohibit the importation into this State of all bulls and all emigrant cattle accompanied by bulls, excepting under the following restrictions: That all such bulls to be imported into this State from any other State, Territory or foreign country, and other cattle accompanying the same, be dipped or sprayed or treated with Beaumont Oil complying with the specifications of this Board, or in Golden Yellow or Extra Dynamo Parafine Oil, to which must be added two per cent of Flowers of Sulphur. When such cattle are dipped as above specified then they need not be placed in quarantine, but if such cattle are dipped in Lime and Sulphur or other liquid dip, then they must remain in quarantine sixty days or until released by

order of the State Veterinarian, All such dipping, spraying or treating of such cattle must be under the supervision of the State Veterinarian or an Inspector duly authorized by this Board, at the expense of the owner or owners.

6. Resolved further that in the case of any party refusing to comply with the provisions of the scab law and his cattle are dipped by someone else, that the bill for such dipping be first sent to the owner of the cattle so dipped and upon his refusal to pay the same, then the bill shall be filed with the Executive Committee of the Board of Stock Commissioners, who shall collect the bill and reimburse the party who does the dipping.

Under the order of the Federal Government and the regulations of this Board all infected and exposed cattle must be treated according to the provisions of the law and with the dips officially recognized by the Federal Government.

RECOGNIZED DIPS.

The following are the recognized dips which will be allowed in this State, and no others should be used:

1. Beaumont Oil of gravity 22½ to 24½B. Sulphur 1¼ to 1½ per cent; 40 per cent should distil over at 200 degrees to 300 degrees F.

2. Extra Dynamo Oil or Golden Yellow Parafine Oil, to which must be added 2 per cent of Flowers of Sulphur. (Note—Flowers of Sulphur or Sublimed Sulphur and not ordinary powdered western sulphur). **With all oil dips one dipping is all that is required if done thoroughly.**

3. Lime and Sulphur. Two dippings required. The firms whose Lime and Sulphur Dip is allowed by the Government are Rex Stock Food Co., Omaha, Neb.; R. D. Richards, Crawford, Neb.; M. R. Tillotson, Mitchell, Neb.

4. Tobacco Extract. Two dippings required. Those manufactured by the following firms are allowed by the Government: Skabcura Dip Co., St. Louis, Mo.; Kentucky Tobacco Product Co., Louisville, Ky.; Laidlaw, Mackill & Co., Richmond, Va.; Henderson Tobacco Extract Works, Henderson, Ky.; F. S. Burch & Co., Inc., Chicago, Ill.

5. Nicotine solutions and tobacco powder by the following

firms: Detroit Nicotine Co., Detroit, Mich.; Tobacco Warehousing & Trading Co., Louisville, Ky.; Laidlaw, Mackill & Co., Richmond, Va.; Atlantic Refining Co., Cleveland, Ohio.

COST OF DIPS.

The cost of these various dips varies according to point of shipment and distance from the railroad materials must be transported. Estimates on Beaumont Oil delivered at the Montana-Dakota line on the Great Northern averaged about nine cents per gallon in tank cars, and points further west would be larger in proportion to the freight rates charged, while if procured in smaller quantities in barrels, the cost would be largely increased, running from 12 to 20 cents per gallon. The formula for the various dips are incorporated herein with directions for their use in the handling of both cattle and horses.

In the dipping of strays or cattle belonging to people who have no interest in the construction of any particular vat, it is estimated that the maximum charge that will be allowed will be fifty cents per head for oil dipping, and $1.50 for lime and sulphur where the cattle are dipped twice and held in herd for the second dipping, this charge to cover holding and dipping.

Appended hereto are the plans of four different styles of vats with descriptions and specifications for each.

The Blackfoot Milling Co. have made an estimate of the approximate cost of the material used in the construction of vats numbered 1 and 3, f. o. b. Helena: For Cage Vat No. 1, $150; for dipping Vat No. 3, $200.

Directions for using the various dips are herein appended.

The Executive Committee of the Board of Stock Commissioners will, as soon as the location of mange is determined publish notice as required by law, defining the dipping distrcts.

DIPPING PLANTS.

We herewith present plans for four different varieties of dipping vats:

The first is the cage or small vat, the list of materials of which is furnished by Dr. Robert H. Treacy of Bismark, Dakota.

The second is a vat for dipping in Beaumont oil, plans and

specifications furnished by Mr. Geo. H. Stevens of Mondak, this State, where he now has this oil dipping plant in operation.

The third is a plan (for dipping in either Beaumont oil or a liquid dip) that has been suggested by Dr. Melvin of the Bureau of Animal Industry.

The fourth is a plan commonly known as the Montana Dipping Vat, which is an expensive one only suited to the dipping of large numbers of cattle.

The cage plan is a suitable dipping plant for small farming or range communities where not more than 1,000 to 1,500 cattle are to be dipped. Such a vat can be constructed for from $150.00 to $200.00.

The swimming vats will cost from $350.00 up to $1,800.00, according to the cost of heating device.

A portable or stationary steam boiler is the ideal method of heating dipping vats, and for boiling lime and sulphur dip. There is by this method increased efficiency, and a large saving in fuel and labor.

Where steam is used, a caloric transferer must be employed; two or three being necessary for the dipping vat and one for each of the boiling tanks.

CAGE VAT.

Specifications.

Entrance pen and chute—

26 planks 2 by 6 inches by 16 feet.
28 posts.
18 braces 4 by 4 inches by 4 feet.

Tank, or Vat—

800 feet good 2-inch plank.
400 running feet tongue strip.
10 pieces 4 by 4 inches by 16 feet.
2 pieces 2 by 6 inches by 16 feet.
10 pounds lead.

Vat. Tank 10 feet deep, 4 feet wide, 9 feet in ground. Should contain from 5½ to 6 feet of dip. Standards 4 by 4 inches by 16 feet long, bolted to tank inside, to extend 6 feet inside of tank, to act as guides to cage; 2 by 6 inch plank 6 feet

long nailed to outside of standards; 2 by 4 or 2 by 6 inch braces across top of standards. The tank should be built of 2-inch plank and joined with a tongue, the ends of the tank mortised in, the joists coated with lead. The braces are 4 by 4 inches. The tank, being placed in the ground and packed solid, does not require much bracing. The tank should be laid in cement bottom, with stone and mortar about sides.

Cage—

8 pieces 4 by 4 inches by 16 feet.
8 pieces 2 by 4 inches by 16 feet.
12 pieces 2 by 10 inches by 16 feet.
10 pieces 1 by 10 inches by 16 feet.
4 half-inch iron rods, with ring in each end, 5½ feet long.
2 half-inch iron rods, with ring in each end, 4 feet long.
3 pairs of heavy hinges.

Derrick—

2 pieces 6 by 6 inches by 20 feet.
1 piece 6 by 6 inches by 10 feet.
6 pieces 4 by 6 inches by 12 feet.
2 pieces 1 by 6 inches by 10 feet.

Cage. Eight feet long, 8 feet high, 3½ feet wide, outside measurement; 2 inch plank used for outside, boarded up and down inside with 1 inch boards to keep animals from climbing up sides. Plank 2 inches apart. Inside boards 2 inches apart, and 1 inch cracks in floor to allow free escape of dip fluid; or, as ends are both open, cage may be framed as in Fig. 1.

Dip chute—

10 pieces 2 by 6 inches by 14 feet.
4 pieces 2 by 12 inches by 14 feet.
4 pieces 4 by 4 inches by 16 feet.
1 pair heavy hinges.
1 gallon tar.

Holding pen—

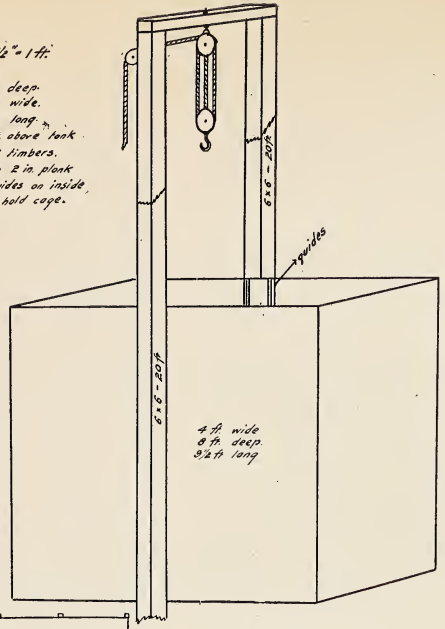
32 cedar or oak posts.
200 pounds wire.
5 pounds staples.

Plan of a Cage Dipping Vat,

by Dr. R. H. Treacy
Bismarck, N. Dakota.

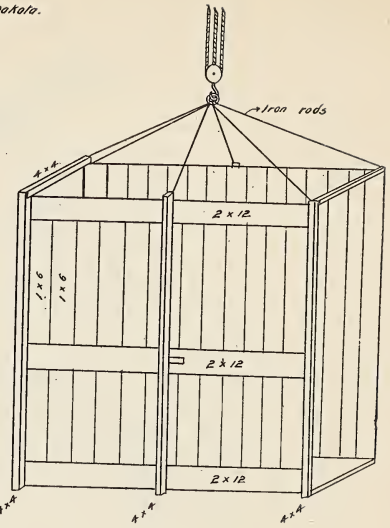
Scale 1/2" = 1 ft.

Tank 8 ft. deep.
4 ft. wide.
9½ ft. long.
Derrick 12 ft. above tank
6 x 6 timbers.
Tank from 2 in. plank
2 4x4 guides on inside
to hold cage.



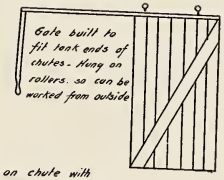
Stop to hold cage up
Fasten to derrick timber with
spring to draw in, and tie hinge
to timber on ground line.

Scale 1/2 in = 1 ft.
cage 9 ft. long (scant).
8 ft. high
38 in. wide
uprights 4 x 4.
crosspieces 2 x 12
Lined inside with 1 in. fencing
1 in. apart, running up and down.
Floor 2 in. plank 1/2 in. apart
Hung by 6 - 1/2 in. iron rods.



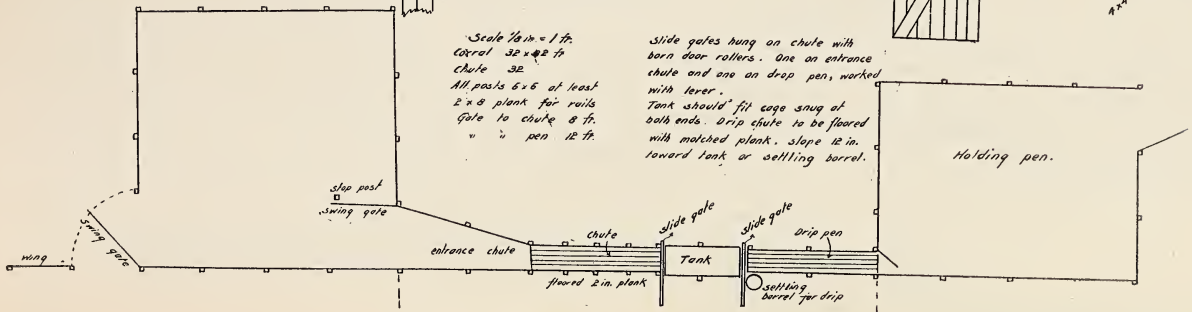
Lumber

Pieces	Length	
49 -	6 x 6 - 12	Posts
4 -	6 x 6 - 16	"
216 -	2 x 8 - 16	Fence
2 -	4 x 6 - 12	Chute joists
4 -	2 x 12 - 16	" floor
2 -	4 x 6 - 12	Drip "
80 -	1 x 4 -	" "
4 -	4 x 4 - 12	Guides
3 -	4 x 4 - 16	Cage
3 -	2 x 12 - 18	"
12 -	1 x 6 - 18	"
2 -	2 x 12 - 18	"



Scale 1/8 in. = 1 ft.
Corral 32 x 32 ft
Chute 32
All posts 6 x 6 at least
2 x 8 plank for rails
Gate to chute 8 ft.
" " pen 12 ft.

Slide gates hung on chute with
barn door rollers. One an entrance
chute and one on drop pen, worked
with lever.
Tank should fit cage snug at
both ends. Drip chute to be floored
with matched plank. Slope 12 in.
toward tank or settling barrel.



This part of the plant is necessary;
Ordinary farm yards may be used for the balance,
pens and holding pens.

Hardware and incidentals—

100 pounds 20-penny spikes.
20 pounds 40-penny spikes.
2 6-inch double-leaf blocks.
1 5-inch single-leaf block.
100 feet 1-inch rope.
25 feet 1½-inch iron pipe.
1 galvanized-iron heating tank (5 barrels capacity).
4 oil barrels.

SPECIFICATIONS FOR MONTANA DIPPING VAT.

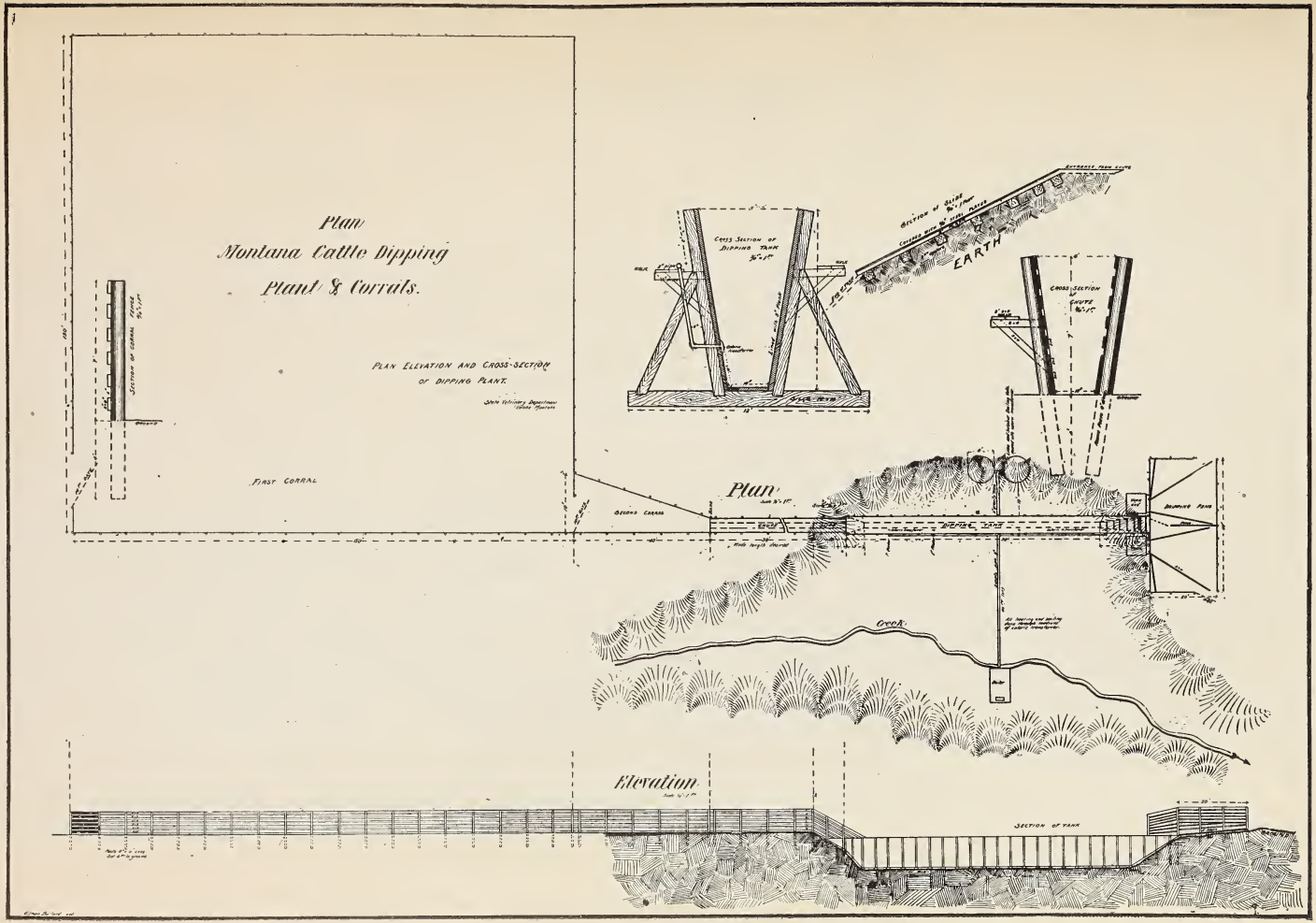
Specifications of labor and material required for the erection and completion of a cattle dipping plant and corrals in accordance with plans herewith submitted.

The first corral will be 150 by 150 as shown on the plan and the fence around the same will be built of 8-inch cedar posts 11 feet long, 4 feet set in the ground 7 feet above ground, covered with 2 by 8 inch planks, spaced 6 inches apart and nailed on the inside of posts with 20d steel wire nails. Make gates where shown on plan and the size marked on plan.

The second corral will be built the same as the first or large corral and the size and shape indicated on plan. The chute will be built in the same way and of the same material as the corral, except that each side will lean out as shown so as to finish 18 inches wide at the ground and 4 feet wide at the top and the 2 by 8 plank are to be close together, 2 feet high from the ground and spaced 4 inches apart, the balance of way to top of posts.

The slides will be 18 by 24 inches by 10 feet long built as shown with 6 by 6 sills 4 feet on centers, covered with 2-inch plank and ⅜-inch sheet steel and will be laid at an angle of 22½ degrees or ¼ pitch.

The vat will be the size and shape shown on plans with 10 by 10 inch sills 12 feet long, 6 by 6 inch posts and 6 by 6 inch braces, all mortised together as shown and spaced 4 feet on centers and fastened together with 60d wire nails; the inside will be lined with 3 by 12 inch cedar plank with the edges slightly beveled on the inside and all joints caulked with Oakum and


Plan
Montana Cattle Dipping
Plant & Corrals.
PLAN ELEVATION AND CROSS-SECTION
OF DIPPING PLANT.
FIRST CORRAL
SECOND CORRAL
Plan
Creek
Elevation
EARTH
CROSS SECTION OF DIPPING TANK
CROSS SECTION CHUTE
SECTION OF TANK

pitched with hot pitch so as to make the vate absolutely water-tight. The exit end will have 2 by 4 inch slats, 12 inch centers laid across the same to form footholds for the cattle leaving the vat.

The dripping platform will be of the size and shape shown on the plan with 6 by 6 inch sills, 4 feet centers, covered with 3 by 12 inch cedar plank caulked and pitched the same as the vat and graded so as to draw into the two small tanks that are shown on each side. It will be surrounded with a fence built like the corral fence and have a center and gate so as to run the cattle into either side desired.

All 3-inch plank are to be spiked to the timbers with 60d steel wire nails, three to each bearing.

All timber should be of cedar. All gates are to have extra heavy strap hangers and fasteners.

All timber for braces, vat posts and material, except the lining of the vat and the floor of the draining pen, should be good, substantial pine and fir.

The lining of the vat, floor of the dripping pen and corral posts, should be cedar.

Also furnish a tank of 40 barrel capacity made of cedar for boiling solution.

The length of vat can be cut down or extended to suit the number of cattle to be dipped.

RULES FOR DETERMINING CAPACITY OF VATS.

The exact rule for determining the capacity of a vat is as follows:

Take the length of the vat at the water line in inches and the length at the bottom of the vat in inches; add these together and divide by 2; the result is the mean, or average, length.

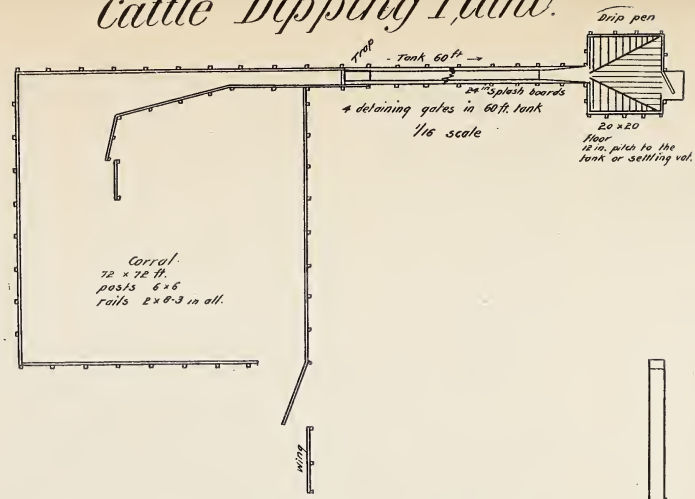
Take the width at the water line in inches and at the bottom in inches; add these together and divide by 2; the results is the mean width.

Multiply the mean length in inches by the mean width in inches, and multiply the result by the depth in inches from the water line to the bottom. This gives you the cubic contents in inches. Divide by 231 (the number of cubic inches in a gallon), and the result gives the contents in gallons.

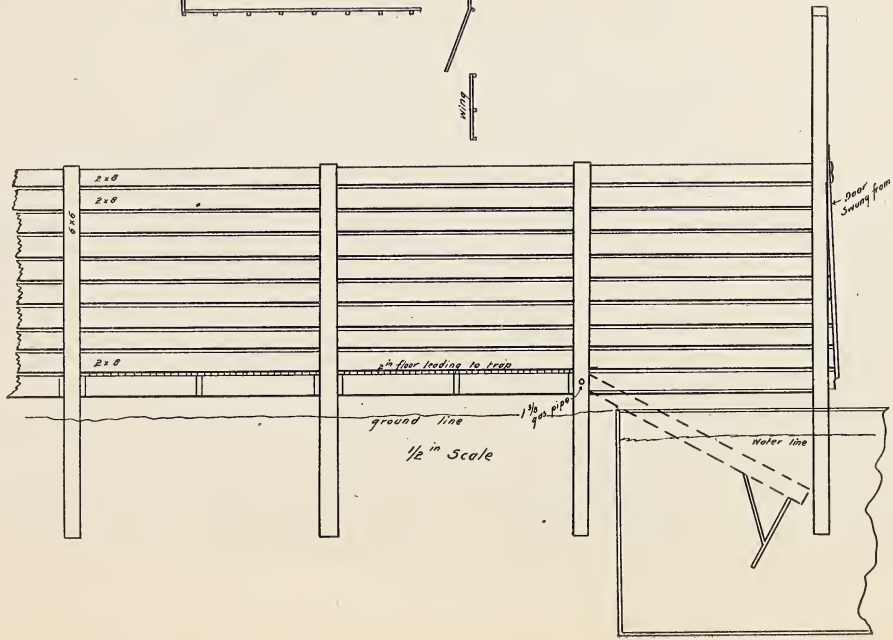
Cattle Dipping Plant.

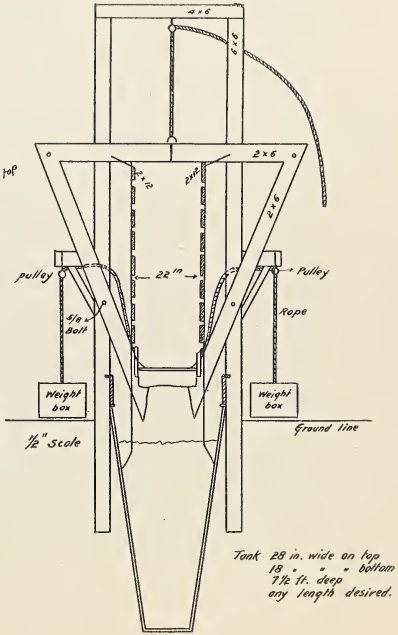
Lumber

Pieces	Length	
66	6 x 6 - 12	Posts.
4	6 x 6 - 16	"
190	2 x 8 - 16	Fence
36	2 x 8 - 20	" dripping floor.
2	2 x 8 - 16	Floor to trap-joists.
4	2 x 12 - 16	" " "
1	4 x 6 - 4	Cap
11	4 x 6 - 20	Drip floor - joists.
40	1 x 12 - 20	" "
3	2 x 6 - 18	Trap.
1	4 x 6 - 18	"
1	2 x 12 - 16	"
1	6 x 6 - 12	Ramps out of vat.
2	2 x 12 - 12	" " " "
2	2 x 4 - 12	" " " "
2	4 x 6 - 16	Posts on side of tank, for splash boards.
100	1 x 4	Floor for splash board.



Weight boxes should be weighted heavy enough to bring the trap back to position promptly.
Splash boards should reach well up on the side of the tank at entrance and well back of the trap.
Tank can be any length desired.
Chute should be floored for at least 16 ft leading to the trap to save carrying in dirt.





Tank 28 in. wide on top
18 " " " bottom
7½ ft. deep
any length desired.

DIRECTIONS FOR TREATING CATTLE SCAB.

In the treatment of scab, it is necessary to be exact in all details. Where lime and sulphur dip is used, or in fact any of the liquid dips, it is imperative that the contents of a dipping vat and boiling tanks should be known exactly in gallons. We, therefore, submit the following simple rule for computing the capacity of vats:

Take the length of the vat at the water line in inches and the length at the bottom of the vat in inches. Add this together and divide by 2; the result is the mean or average length.

Take the width at the water line in inches and at the gottom in inches; add these together and divide by 2; the result is the mean width.

Multiply the mean length in inches by the mean width in inches, and multiply the result by the depth in inches from the water line to the bottom; this gives the contents in cubic inches.

Divide this result by 231 (the number of cubic inches to the gallon) and the result will give the contents of the vat in gallons. **Only measure the space filled by the dip.**

The cooking vat must also be accurately measured.

Where lime and sulphur dip is use, it is necessary to have a pair of scales at the plant for the purpose of weighing accurately all lime and sulphur used in the manufacture of the dip.

Each dipping plant should be supplied with 2 or 3 accurate dairy thermometers for the purpose of keeping constant record of the temperature of the dip, which in cattle dipping should always be between 105 and 115 degrees F.

Where possible, all dipping vats should be constructed on the side of a hill or a coolee, and at the enter of the vate about 2 inches from the bottom plank, there should be an opening 3 inches in diameter provided with a plug, or what is better, a 3-inch gate valve, to permit the draining of dirt that settles at the bottom of the vat at frequent intervals. By this arrangement, large quantities of dip can be saved by permitting the settlings to escape once or twice a day, which must be done after the dip has been allowed to settle for an hour or two.

If the dip is permitted to settle over night or for any con-

siderable length of time, the debris will settle to the bottom and become packed. If only permitted to settle for an hour or two, it will be loosely held in suspension at the bottom of the vat and nearly all of it can be drawn off through the plug or gate valve, and it will not be necessary to clean out the entire vat until 2,500 to 3,000 are dipped. Of course, as the cattle carry out the liquid, fresh dip must constantly be added.

In dipping with oil, about 3 feet of water should be kept in the bottom of the vat, and when the oil becomes foul, it can be allowed to settle for an hour or two and the dirt and droppings be drawn off through the gate valve as above mentioned.

In dipping in lime and sulphur or other liquid dip, the temperature must be taken every few minutes to ascertain that it does not reach below 105 or above 115 F.

Where a vat is not provided with a gate valve or plug for the purpose of drawing off debris, then after 1,500 cattle are dipped, the vat must be thoroughly cleaned and fresh dip employed.

In cleaning the vat, all the contents must be removed, sediment, droppings and all debris be shoveled out clean.

In dipping in lime and sulphur, two dippings are always required; the second dipping to follow 10 days after the first.

Where scabby cattle have been kept in sheds, or stables, all such buildings must be immediately disinfected after the dipping of the cattle the first time. This can be accomplished by lime-washing the entire interior of the sheds, stables or of all close corrals or by thoroughly spraying with the dip left over, to which is added enough lime to make it show where applied. All manure and dirt must be cleaned out of such sheds, stables or corrals.

All cattle must be detained in the dip at least one minute, preferably two minutes, and cases of hard crusted scab should be detained three minutes and the hard crusts be thoroughly soaked and raked with a curry comb.

In dipping cows with calves, the cow and her calf should be dipped together, for if not so done, in large herds the calves are likely to lose their mothers and perish from hunger.

Treatment in Beaumont oil requires but one dipping. The

animals may be plunged into the vat and be allowed immediately to go out upon the draining board, and it is never necessary to detain them any length of time in the vat.

DIRECTIONS FOR MIXING LIME AND SULPHUR.

The most satisfactory proportion for mixing lime and sulphur where flowers of sulphur is used, is 24 lbs. of sulphur to 12 lbs. of good unslaked lime to each 100 gallons of water, this to be boiled actively for fully 3 hours.

Each dipping plant should be supplied with a mortar box for mixing the lime and sulphur before it is boiled. Put the unslaked lime evenly in the bottom of the mortar box and add sufficient water to slake the lime. While the lime is still slaking, mix in the flowers of sulphur and work thoroughly with a hoe. Each 100 gallon mixture carefully weighed out should be boiled in about 30 gallons of water and must always be boiled for not less than 3 hours. When properly mixed and boiled for the requisite time, the solution becomes a dark, chocolate color, and it is well to remember that the longer the solution boils, the more sulphur is dissolved and the less irritating will the dip be.

Where powdered or western sulphur is used, the following proportion must be employed: 33 lbs. of sulphur; unslaked lime, 15 lbs. to each 100 gallons of water. This should be boiled fully 4 hours.

It is well to have the boiling tank provided with a bung about 3 inches from the bottom of the vat so that all the sediment may settle to the bottom and the clear liquid dip be drawn off.

It is advisable to allow the dip to fully settle, then through the spigot draw off the clear liquid into the dipping vat. After the concentrated dip is allowed to run into the vat, then sufficient warm water must be added to the quantity in the dipping vat to make it up to 100 gallons for each 100 gallon portion boiled. While the dip is boiling, it should be stirred frequently with a hoe.

DIRECTIONS FOR HAND TREATING HORSE SCAB.

Three dips are recommended by this department for the treatment of horse scab, the first being extra dynamo oil containing

3 per cent of sulphur; second, lime and sulphur dip; and third, Beaumont oil of the following specifications: Gravity 22½ degrees and 24½ degrees Baume; sulphur 1¼ to 1½ per cent; and 40 per cent to distil over at 200 to 300 F.

Where the extra dynamo oil and sulphur is used, not less than 8 ounces of flowers of sulphur should be mixed with each gallon. In using oil, the horse should be cast, preferably in a clean place, the oil should be applied all over the body, excepting below the hocks and knees, being well rubbed in with a stiff brush or stiff broom. The mane should be thoroughly saturated and well rubbed as should the tail. All the skin of the neck under the mane, top of head and ears, between the jaws, along the back and sides, the shoulders, hips and under the belly and between the legs, should be thoroughly rubbed with an abundance of the oil. Horses so treated, should be kept in the shade for at least one day during hot weather. Oil should not be used in very cold or very hot weather. Where possible, it is preferable to select a time when you are likely to have a few temperate days. In any event, after the application of the oil, horses should not be turned out into the hot sun, or where cold winds can affect them.

The lime and sulphur dip recommended consists of 8 lbs. of good unslaked lime or lime that has not been exposed to the air until it is air slaked; 24 lbs. of flowers of sulphur to each 100 gallons of water. The lime should be placed in a tight box similar to a mason's mortar-box, spread evenly over the bottom of the box and sufficient water added to slake it. While slaking, the sulphur should be added to the lime and be thoroughly mixed with a hoe. This mass should then be placed in a boiling vat or kettle that will contain not less than 40 gallons of water. Then add about 30 gallons of water to the mixture and boil continuously for three hours, adding a little water from time to time as the quantity is reduced by boiling. After the mass has been boiled for 3 hours, it should be allowed to settle until all particles of the lime and sulphur are at the bottom. Then the clear liquid must be drawn off and sufficient warm water added to make the quantity 100 gallons. In applying this dip, the horse must be cast as above mentioned and be thoroughly

scrubbed with the mixture, using a stiff fiber brush or broom. Every portion of the horse's body should be reached with this dip and it must be reapplied the succeeding tenth day. All harness, saddles and bridles must be thoroughly washed in hot water to which is added 4 ounces of carbolic acid to each gallon. The tongues, neck-yokes, double-trees, etc., all wagons or farm implements to which such horses have been hitched must be washed with the same solution. All stables, sheds, corrals and other objects with which diseased horses have come in contact, must be thoroughly whitewashed with a wash containing 4 ounces of carbolic acid or 4 ounces of formaldehyde to each gallon of wash. All stables, sheds and corrals must have all manure and other debris removed to a spot inaccessible to horses or be spread upon the ground and burned. All ingredients used in dipping must be accurately weighed and measured. **Remember that one thorough dipping with oil will ordinarily cure, while it requires two dippings with the lime and sulphur.** Any further directions or information on this topic desired, will be gladly furnished by the Veterinary department.

SYMPTOMS OF CATTLE SCAB.

(Psoroptic Scabies of the Ox).

A common form of cattle scab as it occurs in Montana is manifested by the following symptoms: The disease always commences on the neck, withers or at the root of the tail and gradually extends to the head, shoulders, back and sides of the chest ultimately invading all the surface of the body, excepting the limbs below the hocks and knees.

On the first appearance of the disease, the hair over the affected part appears dead, the animal scratches itself on any available object and in a short time the hair will be rubbed off in various places that are diseased and the underlying skin will be found more or less inflamed and in patches covered with scales or crusts between and under which the scab mites can be readily found. After a little experience in looking for these mites, they can be readily seen on cattle with the naked eye, and

are always easily detected in advanced cases by the use of a small pocket magnifying glass.

In advanced cases, the skin, particularly of the neck, is hard, dry and cracked from the inflammation and will appear in thick folds on the neck, shoulders and chest.

In long standing and neglected cases, ulcerations will appear on the skin from the irritation caused by the scab mite and the constant rubbing.

In all severe cases of scab among cattle, the animal becomes poor and thin, and if not killed by severe cold weather, ultimately dies from exhaustion.

Range cattle show the disease plainly in all its stages before the appearance of new grass in the spring, after which when the cattle have had access to the nutritious new feed for several weeks, the milder cases apparently hair out and look as though they had recovered; but if carefully examined, the mange parasite will be found, and on the appearance of cold weather the following fall, the disease will reappear with renewed activity.

This form of mange in cattle might at a distance be mistaken for lousiness, but such a mistake can be corrected by securing the animal and making a careful examination.

If the trouble is due to lice (which are irritating and cause dropping out of the hair and have identically the same location as the scab mite; that is, on the upper part of the neck, withers and base of the tail) it will be easily ascertained, as the lice in great numbers are visible to the naked eye. However, both scab and lice may exist in the same animal at the same time; therefore, in suspected cases, it is always necessary to make a careful examination with a pocket magnifying lens to ascertain whether or not the scab mite is also present.

The positive determination of cattle mange or scab, however, depends upon the finding of the cattle scab mite, and where any questions arises as to the existence of this disease, the mite must always be seen and determined before animals are subjected to dipping regulations. The Board will require, therefore, that when there is any question of controversy between the local Inspectors and owners relative to the existence of

scab, the State Veterinarian shall act as referee in the matter and determine the question.

SUPPLEMENTAL PROCLAMATION.

"Now, therefore, I, Joseph K. Toole, Governor of the State of Montana, pursuant to such authority of law duly vested in me, do hereby direct and proclaim quarantine against any and all dairy and breeding cattle coming into this State from the States, Territories and foreign countries hereinbefore named.

"And I hereby direct all corporations, persons or companies owning or in charge of such cattle coming from or through any State, Territory or foreign country against which quarantine is herein declared, to give full and due notice without delay to the State Veterinary Surgeon of Montana upon arrival of any such cattle at the boundary line of the State of Montana, and I command any such person or corporation not to allow such animals to leave the place of arrival until they have been examined by the State Veterinary Surgeon, nor until he shall have issued and delivered to the person or corporation in charge of said cattle his official certificate that all such animals are free from disease, and no animal pronounced unsound from disease by the State Veterinary Surgeon must be turned loose or allowed to run at large or be removed or permitted to escape, but must be held subject to the order of the State Veterinary Surgeon.

"Provided that nothing in this proclamation shall be so construed as to prohibit transportation of cattle through this State, provided said cattle are duly accompanied by a health certificate from any State, Territorial or Federal Veterinarian."

A SCAB MITE.

SCAB OR MANGE OF THE HORSE, MULE AND ASS.

There are two varieties of horse scab existing to some extent in Montana at the present time; that is, Sarcoptic, the mite of which makes tunnels or galleries in the skin; and the Psoroptic, the mite of which subsists on the secretions on the outer surface of the skin and is practically a blood sucker.

The first evidence of the common form of Horse Mange as seen in Montana (Sarcoptic) is itching. The animal will endeavor to rub or scratch itself over the diseased point by any available means. A close inspection of the skin will show the hair to have a dead appearance, and over the diseased locality will be found little elevations which can be easily determined as the hand is rubbed over the part. These elevations or little crusts will be found surrounding several hairs, and when removed by the finger nail, there will be observed a bare, moist and reddened surface. As the disease progresses, the hair becomes matted by secretion, ultimately falls out or is rubbed off, leaving the bare skin much inflamed and thickened, and about the neck and shoulders, appearing in thick folds.

As in all other forms of scab, the only convincing and infallible evidence is the presence of the scab mite, which in this particular form of scab is not always easily determined with a pocket magnifying glass.

Since this form of scab is transmissible to man, a German writer (Gerloch) has recommended and personally practiced transferring the disease to the human arm by attaching some of the crusts from a diseased horse to the skin of the arm by an

adhesive plaster, allowing this to remain on for 12 hours, when it will be found that the parasites have partially penetrated the skin and can be seen appearing on the slightly reddened skin as small white points. They can be removed on the point of a needle and are readily seen with a small pocket magnifying glass, particularly if placed on dark paper or on the rim of a black felt hat.

On a bright warm day, however, by placing some skin scrapings and crusts on a piece of black paper, the mites can be seen by aid of the pocket lens.

It would seem, however, that the fact of the existence of a serious skin disease, such as this is, in a locality among horses evidently contagious, should be sufficient evidence of the existence of either one or the other of the two forms of scab seen in this state, and would be ample demand for prompt and vigorous treatment by the owners of such animals.

The above described form of scab is usually slow in development, often being 6 to 8 weeks after exposure before sufficient progress has been made by the disease to make it easily determined.

This disease, much like the common form of cattle scab, begins at the horse's withers, extends to the shoulders, back, the sides of the neck, but rarely, if ever, affects the mane or tail or the regions below the hock and knees.

Psoroptic Scabies of the horse may make its first appearance on any part of the body, but usually appears at the root of the mane or tail or on the pole and upper parts of the head. The hair looks dead and there is scratching and rubbing of the diseased parts at every opportunity. This form is also slow of development and rarely covers the entire body as does the Sarcoptic.

The Psoroptic mite is readily seen with the pocket magnifying glass.

The treatment for both forms or horse scab is practically identical—either lime and sulphur or the oil dressings when properly applied, cure and cure promptly in the great majority of cases. The oil requires but one thorough application; lime and sulphur necessitates two dippings at an interval of from 8 to 10 days.

During the winter or spring when the hair is long, all horses before being treated should be clipped and especially so if the oil dressing is to be used.

Where lime and sulphur is employed, especially in advanced cases, the dipping vat only offers satisfactory results, and if the cage form of vat is used with caution, no unfavorable results obtain and there is rarely a fatality.

All liquid dips to be effectual must be applied hot at a temperature of from 105 to 110 F., and the only satisfactory method of applying such dips, is through the medium of the dipping vat.